State of New Jersey
PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
Mail Code 401-05F
P.O. Box 420
Trenton, New Jersey 08625-0420
Telephone: 609-633-1455
CATHERINE R. McCABE
Commissioner

June 19, 2020

Ricardito Vargas, RPM
Land and Redevelopment Programs Branch
Land, Chemicals, and Redevelopment Division
USEPA, Region 2
290 Broadway, 25th Floor
New York, NY 10007

RE: Final Supplemental Sediment Investigation Report dated May 18, 2020
Former Chevron Perth Amboy Facility
Perth Amboy, Middlesex County, New Jersey
SRP PI #: 003621
Activity Number: RPC000005

Dear Mr. Vargas,

The New Jersey Department of Environmental Protection (Department) has completed a review of the Final Supplemental Sediment Investigation Report (FSSIR) dated May 18, 2020, submitted pursuant to the Resource Conservation and Recovery Act (RCRA), Hazardous and Solid Waste Amendments (HSWA) Permit of 2013, and the NJDEP Technical Requirements for Site Remediation at N.J.A.C. 7:26E (Tech Rules).

The Department's comments on the submittal are provided below.

General Comment

1. The Department concurs with TRC's general conclusion that this Supplemental Sediment Investigation completes the water body investigation requirements for USEPA's HSWA Permit. The Upper Woodbridge Creek is considered the primary receptor, and samples were appropriately collected and analyzed from sediment cores at locations of greatest suspected site-related contamination adjacent to the site, i.e., at seven (7) transects placed at former SWMW/AOC outfalls, and other former discharge locations. Key locations were also sampled in Lower Woodbridge Creek, Spa Spring Creek and, historically, the Arthur Kill.

   It is the Department's overriding comment and opinion that the collective data from 2002, 2014, and 2019 for the Upper Woodbridge Creek unequivocally indicate that sediment remediation is required pursuant to N.J.A.C. 7:26E-5.1 (e), due to the presence of highly elevated EPH concentrations and free/residual petroleum product related to historical discharges from specific former Chevron refinery SWMUs/AOCs. Generally, bank-to-bank remediation is required from Transect 9 downgradient to Transect 3. The collective sediment data and sediment boring logs indicate the presence of highly

elevated EPH (relative to the mean background concentration of 616 mg/kg) and petroleum product on the water surface and in surface and deep sediment intervals (continuous sheen in numerous borings), indicating that remediation should be expedited. This opinion is further supported in Comment 2. If sediment remediation cannot be accomplished under USEPA's HSWA permit, it is imperative that it be conducted under NJDEP's LSRP Program.

Specific Comments

2. (p. 19) 5.0 *Summary of 2002, 2014, and 2019 Water Body Investigations* - Only very general interpretations of EPH data and sediment coring log information are included on p. 19: "In general, petroleum-related constituents were detected at elevated levels in sediment adjacent to the facility...." The summaries of the individual investigations in 2002, 2014, and 2019 in sections 5.1, 5.2, and 5.3 also provide only limited evaluations. It is understood that the 2002 investigation did not include EPH (or TPH), however sediment core logs from 2002 are available and their evaluation is imperative. A slightly more detailed paragraph is provided on p. 30 with regard to the 2019 Woodbridge Creek boring logs, and describes "sheen, staining, and odors suggesting petroleum-related contamination in approximately 50% of the borings" and that these features are "discontinuous" and sheen is "slight to moderate." These generalized evaluations diminish key core-specific and transect-specific findings. For example, sediment coring logs indicate at SED-03-A, SED-03-B, SED-03-C-,SED-04-A, SED-04-B, SED-06-A, SED-06-B, SED-24-A, and SED-09-C there is **continuous** sheen from 0-8' or 0-9' (2014, 2019), sheen on the water surface, and black-stained meadow mat (2002). "Brown viscous liquid" was detected at-depth in SED-03-C (2019). The conclusion, p. 42, simply states "EPH concentrations are elevated in the portion of Upper Reach of Woodbridge Creek adjacent to the Facility." The 2019 report Appendix C concludes "The data suggest a possible limit of Facility-related COPECs somewhere between Transect SED-06 and SED-23." Again, it is the Department's opinion that the collective data indicate the need for a larger remedial a footprint, from Transect 9 to Transect 3.

   The historical discharge of petroleum product from the site is the paramount concern and a detailed data evaluation is necessary. Therefore, the Department has evaluated in detail each sediment transect in the Upper Woodbridge Creek regarding the EPH concentrations (mg/kg) relative to the mean background concentration and sediment coring log information from the three investigations, which verify that sediment contamination in Woodbridge Creek is linked to former Chevron SWMUs/AOCs, and remediation is required.

   In the table below, the Department has attempted to create a visual representation of the sediment contamination in Upper Woodbridge Creek in a downstream to upstream direction, from the west back adjacent to Chevron to east bank, starting at Transect 3. The maximum EPH concentration was used from each sediment core from the 2014 or 2019 sampling events from Volume 1, Figure 7 (lower but still highly elevated concentrations can be present elsewhere in the core) and sediment coring log data and information from 2002, 2014, and 2019. The "C" core location is adjacent to the specific outfall/discharge area adjacent to the Chevron site on the west bank, the "B" core is mid-channel, and the

"A" core is at the east bank. The presence of continuous product that starts at the surface interval and free product are highlighted and is cause for an expeditious remediation. As a frame of reference, the mean sediment background EPH is 616 mg/kg.

Upper Woodbridge Creek EPH (mg/kg), sediment core findings, and recommendations for remediation:

Transect #	**SWMU/AOC Associated with discharge to Woodbridge Creek**	**C Adjacent to Chevron, West Bank**	**B Mid-point**	**A East Bank**	**Remediation Required /supporting information**
Transect 3	SWMU 40 Old Pond, No. 1 Separator; Former LNAPL areas e and f; SWMU 24 TEL Weathering Area.	**40,200** Brown viscous liquid at 7.5', sheen 1-2.5' and 6-9' (2019) Sheen, odor , black staining 0-8' (2014) Free Product, strong odor and staining 0-6' (2002);	**7390** Sheen 0-9' (2019) Sheen, odor, black staining 0-6' (2014) Moderate staining, odor 0-2. 5; strong staining and odor2.5-3' (2002)	**12,000** Sheen, petroleum odor 0-9' (2019) Stain, odor 0-2.5'; sheen on water (2002)	YES - Petroleum product and EPH gradient from west bank "C" location; Product at surface; On site U-040 borings associated with SWMU 40 contain LNAPL (U-040-001, 007, 008 along Woodbridge Creek perimeter); No. 1 separator had direct discharge to Woodbridge Creek pre-1976; aerial photo evidence (Appendix D, p.15).
Transect 4	SWMU 41 Drying Area; SWMU 24 TEL Weathering Area	**33,000** No product indicator; elevated PID (2019) Odors 0-5' (2014) Odors, elevated PID (2002)	**1500** Sheen 0-9' (2019) Refusal (2002)	**14,000** Sheen 0 –8.5' (2019) Sheen on water; staining and odor 0-2.75; Black-stained meadow mat 3-3.25'; black product-stained sand 3.25- 4'; elevated PID (2002)	YES – EPH gradient from west bank "C" location; product at surface
Transect 5	SWMU 31 Effluent Treatment Plant; Former SWMU 41 LNAPL Area; SWMU 35, No.4 Separator; former LNAPL areas a and d.	**5000** No product indicator; elected PID 4-7' (2019); Sheen on water surface (2002)	**3500** No product indicator; elevated PID 6-9' (2019); PID ND (2002)	**2500** No product indicator; elected PID 7-9' (2019); Staining, odors 2-6' (2002)	YES – EPH gradient from west bank "C" location; No. 4 separator directly discharged to Woodbridge Creek pre-1976 (Appendix D, p.15).

Transect 6	SWMU 1 North Field Basin; SWMU 2 Surge Pond	**14,000** Slight sheen and elevated PID 1-5.5' (2019) Staining and odor 0-1.75; odors to 3.25'; elevated PID (2002)	**3200** No product indicator; elected PID 7-9' (2019) Odors, slight sheen 0-8' (2014) Black staining and odors .75-6' (2002)	**4600** Sheen 0-7' (2019) No Product indicators; elevated PID (2002)	YES – EPH gradient from west bank "C" location; Surge Pond and NFB discharged to Woodbridge Creek pre-1976 (Appendix D, p. 15)
Transect 23	SWMU 1 North Field Basin; SWMU 2 Surge Pond	**10,000** No product indicator; Elevated PID – 2.5-9' (2019)	**6900** Sheen at 7'; elevated PID 6.5-9' (2019)	**23,000** Odor 0-2'; elevated PID 0-7' (2019)	YES, elevated EPH; discharge from NFB to Woodbridge Creek
Transect 24	SWMU 1 North Field Basin; SWMU 2 Surge Pond	**10,000** Slight sheen and elevated PID 0-3.5	**15** No product indicator;	**26,000** Slight sheen 0-7'	YES, elevated EPH; discharge from NFB to Woodbridge Creek
Transect 9	Approximately 600' upgradient form Transect 24	**27,000** Sheen, odor staining, 0-9' (2019) Odors 0-5'; sheen 4' (2014) staining and odors 0-6' strong staining, odor 2.75-3'; product globules on meadow mat 2.75-3' (2002)	**4600** Slight Sheen 2.5-7" (2019) Staining and odors .5-1.75' (2002)	**5100** Slight-moderate sheen 1-2.5 (2019) Odors 0-5' (2014) Black staining 0-3.5'; black meadow mat 3.25'; odors 3.25-3.5 (2002)	YES – EPH gradient from west bank "C" location; contaminant transport via tidal action considered; product at surface

Regarding metals in Upper Woodbridge Creek sediment (Volume I, Figure 8), this report also did not present a transect-specific or sediment-boring specific data evaluation. The Department has not conducted a depth review for metals because they are generally co-located with EPH and petroleum product and presumably will be remediated, however, there are salient findings that should have been raised in this report. For example, copper is ubiquitous at levels well-above the ecological screening criterion of 34 mg/kg and the

mean background concentration of 172 mg/kg, and an arsenic hot spot is apparent at Transect 23.

3. (p. 19) 5.1 *Summary of 2002 Water Bodies Investigation* – The last paragraph states "No sheen or other visual indicators of contamination or effects on biota were observed in surface waters or along the banks of the creeks." This contradicts findings in the 2002 boring logs, including "sheen on water." For example, please refer to 2002 sediment boring logs for SED3-A, SED-3-C, SED-4-A. Also, what is meant by "no visual indicators of effects on biota?" An Ecological Risk Assessment is necessary to determine biological effects, unless a gross effect such as a fish kill, or other lethal impact is meant. The text should be corrected.

4. In Volume I, the figure numbers in Table of Contents and the numbers on the actual figures do not match (starting with Figure 3). The Table of Contents should be corrected.

5. In Volume 4, Attachment 3, the first table heading incorrectly states "Pro UCL Input for Metals; it should state "EPH." The table should be corrected.

Please incorporate these comments into the letter that the USEPA will be sending to Former Chevron Perth Amboy Facility.

Thank you for your cooperation in this matter. If you have any questions, call Charles Zielinski at (609)292-0848, or email at Charles.Zielinski@dep.nj.gov.

Sincerely,

Charles E. Zielinski

Charles E. Zielinski
Bureau of Case Management

cc: Charles Zielinski, NJDEP
Jill Monroe, NJDEP via electronic mail
James Kealy, NJDEP via electronic mail
Iman Olguin-Lira, NJDEP via electronic mail
Nancy Hamill, NJDEP via electronic mail